# Introduction to Inert Gas Systems — study guide



An inert gas system keeps cargo tank atmospheres too oxygen-poor to support combustion. This guide covers the main components, when the system is used, what to do if it fails, and why it matters even with an empty tank.[1]

## Main components

A typical inert gas system includes a **scrubber tower**, a **pressure/vacuum breaker** and a **demister**, together with the associated blowers, deck water seal and piping.

## When the system is used

The inert gas system is used during tank cleaning, cargo loading and cargo discharge — that is, whenever the tank atmosphere is being disturbed and could otherwise enter the flammable range.

## If the system fails

If the inert gas system fails, the crew must take action to prevent any air ingress to the tanks, close the deck isolating valve, and stop any cargo or ballast operations from inerted tanks. These steps keep oxygen out until inerting can be restored.

## Why it matters

Even with no cargo on board, flammable vapours may still be present within a vessel's storage tanks, which is why tank atmospheres are kept inert. The relationship between the composition and flammability of a specific hydrocarbon gas, air and inert gas in cargo tanks is often displayed in a **flammability diagram**.

## Key facts to remember

- Components: scrubber tower, pressure/vacuum breaker, demister.
- Used during tank cleaning, cargo loading and cargo discharge.
- On failure: prevent air ingress, close the deck isolating valve, stop cargo/ballast operations from inerted tanks.
- Flammable vapours can remain in tanks even with no cargo on board.
- Hydrocarbon/air/inert-gas flammability is shown on a flammability diagram.

## Sources

1. SOLAS Chapter II-2 and the International Code for Fire Safety Systems (FSS Code) — inert gas systems for tankers; with reference to industry tanker guidance (ISGOTT).

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